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**BY FACSIMILE**

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Dear Sirs,

**PCT Application No. PCT/GB2004/005137**  
**Applicant: BP Exploration Operating Company Limited**  
**Our Ref. BPX10106**  
**Response to the Written Opinion of the International Preliminary**  
**Examining Authority**

We refer to the Written Opinion of the International Preliminary Examining Authority dated 2 December 2005, issued in respect of the above-mentioned patent application.

According to the Written Opinion, claims 1 to 10 are considered to be novel.

However, the Examiner believes that the subject matter of Claims 1 and 8 is not inventive over GB-A-2.345.308 (D1) in combination with the disclosure of US-A1-2003/0222409 (D2) and that the other claims also lack an inventive step in view of these references together with US-B1-6.171.351 (D3).

The claims of the application are characterised in that the hard angular material is applied to the external surface of the portion of the first tubular element and/or the internal surface of the portion of the second tubular element by plasma spraying to form protuberances on the surface.

We disagree with the Examiner's assertion that the individual, relatively  
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small, discrete pieces of relatively hard material disclosed in D1 themselves form protuberances. It is clear from our specification that the protuberances are formed by the process of plasma spraying over the surface in such a manner that there are areas which bulge beyond the surrounding surface. The Examiner's interpretation of the claim would render the term of Claim 1 "to form protuberances on the surface" as having no meaning. A specific means for forming the protuberances is to use a mask and this is the subject of Claim 2.

In the Written Opinion of the Searching Authority, US 2002/079106 was cited as disclosing the invention. In our response dated 13 September, we pointed out that the document disclosed coating the whole or part of the exterior of the first pipe prior to its location within the second pipe. Similarly, D1 discloses coating the portion of the liner to be expanded against the casing. There is no teaching or suggestion of forming the protuberances, for example by the use of a mask, as claimed in the pending claims of the present application.

The Examiner asserts that in view of the disclosure of D2, it would be obvious to apply the relatively hard material to the liner of D1 by plasma spraying to form protuberances on the surface. D2 discloses applying a high friction coating to the locking surfaces of an anti-rotation device which forms part of a threaded connection. There is no teaching or suggestion of forming protuberances, for example by the use of a mask, as claimed in the pending claims of the present application. Therefore, D2 merely shows that plasma spraying is a known method of providing a high friction surface.

The inventors have found that particularly good connections can be formed by plasma spraying the external surface of the portion of the first tubular element to form protuberances on the surface. The Examiner asserts that the use of a forminous mask is merely one of several straightforward possibilities from which the skilled person would select, without exercise of inventive skill. This misses the point that in D1 and D2 there is no reason why the skilled person would have any incentive to use such a mask. D3 discloses the use of a mask with plasma spraying to form an abrasive coating for a metal component of a drive unit. There is nothing in D3 that would suggest that it would be useful or even appropriate to use such a mask to improve the connection between tubular elements such as pipe for strings to be used in oil and gas wells.

The applicant believes that the pending claims are patentable over the three documents relied upon by the Examiner.

Yours faithfully,

  
**R R HYMERS**  
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General Authorisation 36478